



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,698	07/18/2007	Tomohiko Matsushita	15115/244001	9466
22511	7590	07/12/2010		
OSHA LIANG L.L.P. TWO HOUSTON CENTER 909 FANNIN, SUITE 3500 HOUSTON, TX 77010			EXAMINER CHIN, CHRISTOPHER L.	
			ART UNIT 1641	PAPER NUMBER
			NOTIFICATION DATE 07/12/2010	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@oshaliang.com
buta@oshaliang.com

Office Action Summary

Application No.

10/594,698

Applicant(s)

MATSUSHITA ET AL.

Examiner

Christopher L. Chin

Art Unit

1641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,8,9,11-13 and 15-22 is/are pending in the application.
- 4a) Of the above claim(s) 8,9 and 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,12,13,15 and 20 is/are rejected.
- 7) ☒ Claim(s) 4-6,16-19,21 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9/28/06 & 10/15/09
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I – claims 1, 3-6, 12, 13, and 15-22 in the reply filed on 4/23/10 is acknowledged.

Claims 8, 9, and 11 are withdrawn from consideration.

Claim Rejections - 35 USC § 112

2. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 is vague because the recitation of "the metal fine particle" lacks antecedent support. Claim 1 only refers to "metal particles".

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140

F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1, 3, 12, 13, 15, and 20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 5, and 8 of copending Application No. 10/589,044. Although the conflicting claims are not identical, they are not patentably distinct from each other because a surface plasmon resonance sensor with essentially the same components as the instant sensor.

Copending '044 claims a surface plasmon resonance sensor chip comprising:
a transparent substrate with a flat surface on a first side; and

a metal layer including a flat part of metal thin film formed on the flat part of the substrate, and a plurality of metal particles (i.e. convex parts) that are arranged spaced apart from each other immediately above the flat part and that have a diameter between 20 nm and 150 nm, wherein the metal particles are made of the same material as the flat part, and wherein the transparent substrate comprises a surface for receiving light on a second side opposite to the first side. The material of the metal layer is gold or silver. A prism for supporting the chip, a light source, and a light detector are also included to form the sensor.

The sensor of copending '044 differs from the instant sensor in that is not for detection of luminescent light from light emitting molecules.

However, the use of light emitting molecules is an intended use and is not given any weight. The sensor of copending '044 contains all the components recited in the instant sensor.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

5. Claims 1, 12, 13, 15, and 20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of copending Application No. 12/042,910. Although the conflicting claims are not identical, they are not patentably distinct from each other because copending '910 claims a plasmon resonance sensor with essentially the same limitations as the instant sensor.

Copending '910 claims a plasmon resonance sensor comprising:
a surface plasmon resonance sensor chip;
a light source for irradiating light onto the surface plasmon resonance chip; and
a photodetector for receiving light reflected by the surface plasmon resonance sensor chip;

wherein the surface plasmon resonance sensor chip comprises;

a substrate,

a metal layer formed so as to cover at least one part of a surface of the substrate, and

a plurality of concave parts being formed in the metal layer, wherein the metal layer has a bottom surface in contact with the substrate and a top surface opposite to the bottom surface, and wherein the concave parts have at least one set of opposing side wall faces causing a local resonance electric field to be generated between the side wall faces when light is received at the top surface of the metal layer. The depth and width of the concave part is greater than or equal to 20 nm and less than or equal to 100 nm. The material of the metal layer can be Au or Ag.

The sensor of copending '910 differs from the instant sensor in that is not for detection of luminescent light from light emitting molecules.

However, the use of light emitting molecules is an intended use and is not given any weight. The sensor of copending '910 contains all the components recited in the instant sensor.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3, 12, 13, 15, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Takei et al.

Takei et al (US Patent 6,331,276 B1) discloses a surface plasmon resonance sensor chip comprising a transparent substrate (40) with a thin layer of metal (41) (gold, silver, or aluminum) thereon. The thin layer of metal is 5 nm to 100 nm in thickness and is applied to the transparent substrate by evaporation. The thin layer of metal is treated with a 10 mM solution of a thiol molecule so as to form a modified layer (42) on the surface. A solution of gold capped particles, having a diameter of 5 nm to 100 nm, are applied to the thin layer of metal (Col. 3, lines 18-36). As shown in Fig. 3D, the particles are spaced apart.

With respect to claim 8, Figure 2A shows a surface plasmon sensor comprising a prism, light source, and detector which can be used with the disclosed sensor chip.

Allowable Subject Matter

8. Claims 4-6, 16-19, 21, and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 4,877,747 discloses a optical sensor where metal particles are spaced apart on the top surface of a prism (see Figure 4).

US Patent 5,527,712 discloses a substrate with spaced apart metal islands.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher L. Chin whose telephone number is (571) 272-0815. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Shibuya can be reached on (571) 272-0806. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher L. Chin/
Primary Examiner, Art Unit 1641

7/6/10